

We claim:

1. A process for preparing a low-odor hydrogel-forming acrylic acid polymer, which comprises the steps of:
  - a) preparing a polymeric hydrogel by free-radically polymerizing a monomer composition comprising at least 50% by weight of acrylic acid in an aqueous polymerization medium and converting said hydrogel into a particulate hydrogel or into hydrogel-forming powder; and optionally
  - b) treating said particulate hydrogel or said hydrogel-forming powder with a crosslinking substance which, actually or latently, contain at least two functional groups capable of reacting with the carboxyl groups on the addition polymer;
- characterized by the acrylic acid used in step a) containing less than 400 ppm (by weight, based on acrylic acid) of volatile saturated carboxylic acids selected from the group consisting of acetic acid and propionic acid.
2. A process as claimed in claim 1, wherein step a) is effected using an acrylic acid obtained by a single or multiple stage crystallization of a crude acrylic acid having an acetic and/or propionic acid content in the range from 0.1 to 5% by weight.
3. A process as claimed in claim 2, wherein step a) is effected using an acrylic acid obtained by single or multiple stage crystallization of said crude acrylic acid at from 0 to 13°C.
4. A process as claimed in any of the preceding claims, wherein the acrylic acid used in step a) is in the form of a partially or completely neutralized aqueous acrylic acid solution.
5. A process as claimed in any of the preceding claims, wherein the crosslinker in step c) is selected from compounds capable of forming ester groups with the carboxyl groups on the addition polymer.

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6. A process as claimed in any of the preceding claims, wherein the monomer mixture to be polymerized in step a) comprises, based on its total weight,
- 5        -     from 50 to 99.99% by weight of acrylic acid as monomer A,
  - from 0 to 49.99% by weight of one or more  
              monoethylenically unsaturated monomers B which are  
              copolymerizable with acrylic acid, and
  - 10       -     from 0.01 to 30% by weight of at least one crosslinking  
              compound C.
7. The use of an acrylic acid having a propionic acid and acetic  
15       acid content of less than 400 ppm for preparing a low-odor  
         hydrogel-forming acrylic acid polymer.
8. Hydrogel-forming addition polymer obtainable by a process as  
         claimed in any of claims 1 to 6.
- 20       9. The use of hydrogel-forming addition polymer as claimed in  
         claim 8 for preparing hygiene articles.
10. Hygiene articles comprising an absorbent core which includes  
25       at least one hydrogel-forming addition polymer as claimed in  
         claim 8.

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